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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/751,099	12/31/2003	Anees Narsinh	134170	1338
77216 7590 08/29/2008 ALCATEL-LUCENT C/O GALASSO & ASSOCIATES, LP P. O. BOX 26503 AUSTIN, TX 78755-0503				
EXAMINER				
SHIN, KYUNG H				
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2143				
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08/20/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/751,099

Applicant(s)

NARSINH ET AL

Examiner

KYUNG H. SHIN

Art Unit

2143

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/16/2007 has been entered.
2. This application was filed on **12-31-2003**. Claims **1 - 12** are pending. Claims **1, 2, 5, 10** have been amended. Claims **1, 2** are independent.

Response to Arguments

- 3 Applicant's arguments filed 7/16/2008 have been fully considered but they are not persuasive.

Applicant argues that the referenced prior art does not disclose the following amended claim limitations: traffic policer, MAC buffer, VLAN push module, a first rate buffer, an ingress bus transmitter, an egress bus receiver, a second rate buffer, and a VLAN pop module, a classifier, a forwarding processor, and an egress processor. (see Remarks Pages 5,6)

The amended claim limitations have been disclosed within the current set of prior art references.

Denney discloses the MAC preprocessor and MAC postprocessor. (Denney para 052, ll 1-4: MAC preprocessor, postprocessor) And, Crinion discloses a MAC buffer (Crinion col 5, ll 42-47: packet buffer (MAC buffer)), a VLAN push module (Crinion col 6, ll 59-64: queue management; push: placement of frame onto queue; removal of frame from queue), and a VLAN pop module (Crinion col 6, ll 59-64: queue management). And, Hussain discloses a traffic policer (Hussain col 4, ll 42-43; ; col 7, ll 36-39: ingress policing), a first rate buffer (Hussain col 4, ll 44-50: col 7, ll 5-11: rate control based on the flow to which packet belongs (packet flow, packet buffering)), an ingress bus transmitter (Hussain col 8, ll 31-33; col 8, ll 38-41: ingress processor (transmitter)) And, Hussain discloses an egress bus receiver (Hussain col 8, ll 31-33; col 8, ll 38-41: egress processor (receiver)), and a second rate buffer (Hussain col 4, ll 44-50: col 7, ll 5-11: rate control based on the flow to which packet belongs (packet flow, packet buffering))

In addition, Hussain discloses wherein a classifier, a forwarding processor and an egress processor. (Hussain col 8, ll 56-62; col 7, ll 62-64: classifier; col 6, ll 33-36: processor to provide IP packet forwarding (forwarding processor); col 8, ll 31-33; col 8, ll 38-41: egress unit composed of an array of packet processors; egress processor).

Claim Rejections - 35 USC § 103

The text of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1 - 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Crinion et al.** (US Patent No. **6,181,699**) in view of **Hussain et al.** (US Patent No. **7,161,904**) and further in view of **Denney et al.** (US PG PUB No. **20030061623**).

Regarding Claim 1, Crinion discloses a data link layer processor comprising:

one or more media access controllers (MACs); (Crinion Figure 8; col 5, ll 66-67; col 6, ll 66 - col 7, ll 3; col 8, ll 17-19; col 8, ll 34-37: MAC (Ethernet) access for data frames, input and output) In addition, Crinion discloses a MAC buffer (Crinion col 5, ll 42-47: packet buffer (MAC buffer)), a VLAN push module and a VLAN pop module (Crinion col 6, ll 59-64: queue management; push: placement of frame onto queue; removal of frame from queue). Crinion does not explicitly disclose that each MAC includes a MAC **pre**processor and a MAC **post**processor. And, Crinion does not explicitly disclose a traffic policer; first rate buffer, and an ingress bus transmitter, an ingress bus receiver, and a second rate buffer.

However, Denney discloses:

a) each of said one or more MACs includes a MAC preprocessor and a MAC postprocessor, (Denney para 052, ll 1-4: MAC preprocessor, postprocessor) and

And, Hussain discloses:

a traffic policer (Hussain col 4, ll 42-43; col 7, ll 36-39: ingress policing), a first rate buffer (Hussain col 4, ll 44-50: col 7, ll 5-11: rate control based on the flow to which packet belongs (packet flow, packet buffering)), an ingress bus transmitter (Hussain col 8, ll 31-33; col 8, ll 38-41: ingress processor (transmitter)); an

egress bus receiver (Hussain col 8, ll 31-33; col 8, ll 38-41: egress processor (receiver)), and a second rate buffer (Hussain col 4, ll 44-50: col 7, ll 5-11: rate control based on the flow to which packet belongs (packet flow, packet buffering)).

Crinion does not explicitly disclose a traffic shifter for discarding one or more frames that exceed a bandwidth requirement.

However, Hussain discloses:

- b) a traffic shaper, operatively coupled to the one or more MACs, for discarding one or more frames that exceed a bandwidth requirement prior to transmission to the MACs. (Hussain col 9, ll 57-64; col 10, ll 14-16: discards frames that do not conform to bandwidth requirements, rate limit egress (output) flow: must drop packet prior to transmission to output queue or MACs)

It would have been obvious to one of ordinary skill in the art to modify Crinion where each MAC includes a MAC preprocessor and a MAC postprocessor as taught by Denney, and to modify Crinion for a traffic policer; first rate buffer, and an ingress bus transmitter, an ingress bus receiver, a second rate buffer and for discarding one or more frames that exceed a bandwidth requirement prior to output as taught by Hussain. One of ordinary skill in the art would have been motivated to employ the teachings of Denney in order to increase packet throughput capacity and sustain performance (Denney para 017, ll 1-3: “... *Therefore, a system and method that increase packet throughput capacity and sustain performance are needed to address the above problems.* ...”), and to employ the teachings of Hussain in order

to perform a fair allocation of bandwidth with network packet based metering within a virtual network environment (Hussain col 1, ll 33-36: “ ... *In the case of a multi-client network, for example, it may be desirable to meter and/or identify customers, or certain groups of customers, that are oversubscribing (e.g., using more than their allocated bandwidth).* ... ”; col 1, ll 43-49: “ ... *Thus there is a general need for an improved system and method for performing metering in a virtual router based network switch. There is also a general need for a system and method for performing metering in a multi-client network that distinguishes between clients and groups of clients. There is also a need for a system and method that supports a fair sharing of communication resources.* ... ”).

Regarding Claim 2, Crinion discloses a switching device comprising:

- a) one or more physical layer interfaces for transmitting frames to a communication network; (Crinion Figure 8; col 8, ll 26-28; col 5, ll 66-67; col 6, l 66 - col 7, l 3; col 8, ll 17-19; col 8, ll 34-37: MAC (Ethernet) access for data frames, input/output)
- c) a plurality of data link layer processors (Crinion Figure 8; col 5, ll 26-28; col 8, ll 17-19: data link layer (MAC) processor(s), 802.3 LAN users), wherein each data link layer processor comprises:

Crinion discloses wherein one or more media access controllers (MACs), wherein each MAC is operatively coupled to a physical layer interface; (Crinion Figure 8; col 8, ll 26-28; col 5, ll 66-67; col 6, l 66 - col 7, l 3; col 8, ll 17-19; col 8, ll 34-37: MAC

(Ethernet, 802.3 LAN users) access for data frame) Crinion does not explicitly disclose that each MAC includes a MAC preprocessor and a MAC postprocessor.

However, Denney discloses:

- d) each of said one or more MACs includes a MAC preprocessor and a MAC postprocessor, (Denney para 052, ll 1-4: MAC preprocessor, postprocessor) and

Crinion discloses wherein a network processor for routing the frames towards the one or more physical layer interfaces. (Crinion Figure 8; col 2, ll 46-54: process (processor) network traffic; col 1, ll 7-10; col 5, ll 17-19: routing data frames) Crinion does not explicitly a traffic shaper for discarding one or more frames from the network processor that exceed one or more bandwidth parameters. In addition, Crinion does not explicitly disclose a classifier, a forward processor and an egress processor.

However, Hussain discloses:

- b) having a classifier, a forwarding processor and an egress processor. (Hussain col 8, ll 56-62; col 7, ll 62-64: classifier, flow classification for packets using header information (properties of packet); col 6, ll 33-36: include a virtual routing processor to provide IP packet forwarding (forwarding processor); col 8, ll 31-33; col 8, ll 38-41: egress unit composed of an array of packet processors; egress processor may share common code)
- e) a traffic shaper, operatively coupled to the one or more MACs, for discarding one or more frames from the network processor that exceed one or more bandwidth parameters prior to transmission to the MACs. (Hussain col 9, ll 57-64; col 10, ll

14-16: discards frames that do not conform to bandwidth requirements, rate limit egress (output) flow: must drop packet prior to transmission to output queue or MACs)

It would have been obvious to one of ordinary skill in the art to modify Crinion where each MAC includes a MAC preprocessor and a MAC postprocessor as taught by Denney, and to modify Crinion for a classifier, a forward processor, an egress processor, and a traffic shaper discarding one or more frames from the network processor that exceed one or more bandwidth parameters as taught by Hussain. One of ordinary skill in the art would have been motivated to employ the teachings of Denney in order to increase packet throughput capacity and sustain performance (Denney para 017, II 1-3), and to employ the teachings of Hussain in order to enable the capability to perform a fair allocation of bandwidth with network packet based metering within a virtual network environment (Hussain col 1, II 33-36; col 1, II 43-49).

Regarding Claim 3, Crinion discloses the switching device of claim 2, wherein the traffic shaper discards the one or more frames in accordance with a Three Color Marker (TCM) algorithm. (Hussain col 7, II 15-19; col 10, II 1-3: Three Color Marker (TCM) algorithm (RFC 2698) utilized to discard frames based on TCM requirements)

It would have been obvious to one of ordinary skill in the art to modify Crinion to enable the capability for a traffic shaper for discarding one or more frames from the network processor that exceed one or more bandwidth parameters as taught by

Hussain. One of ordinary skill in the art would have been motivated to employ the teachings of Hussain in order to enable the capability to perform a fair allocation of bandwidth with network packet based metering within a virtual network environment. (Hussain col 1, ll 33-36; col 1, ll 43-49)

Regarding Claim 4, Crinion discloses the switching device of claim 3, wherein the TCM algorithm is selected from the group consisting of: single rate TCM, two rate TCM, and a combination thereof. (Hussain col 7, ll 15-19; col 10, ll 1-3; TCM: two rate TCM disclosed))

It would have been obvious to one of ordinary skill in the art to modify Crinion to enable the capability for a traffic shaper for discarding one or more frames from the network processor that exceed one or more bandwidth parameters as taught by Hussain. One of ordinary skill in the art would have been motivated to employ the teachings of Hussain in order to enable the capability to perform a fair allocation of bandwidth with network packet based metering within a virtual network environment. (Hussain col 1, ll 33-36; col 1, ll 43-49)

Regarding Claim 5, Crinion discloses the switching device of claim 2, wherein the traffic shaper comprises:

- a) a meter module for determining a flow rate associated with the frames received from the network processor; (Hussain col 2, ll 32-36; col 2, ll 41-44: processor utilized to determine a packet flow rate (bandwidth)) and

- b) a discard control logic for selectively discarding said one or more frames based upon the flow rate and the one or more bandwidth parameters. (Hussain col 9, II 57-61; col 10, II 14-16: drop (discard) frames selectively (based on criteria))

It would have been obvious to one of ordinary skill in the art to modify Crinion to enable the capability for a traffic shaper for discarding one or more frames from the network processor that exceed one or more bandwidth parameters as taught by Hussain. One of ordinary skill in the art would have been motivated to employ the teachings of Hussain in order to enable the capability to perform a fair allocation of bandwidth with network packet based metering within a virtual network environment. (Hussain col 1, II 33-36; col 1, II 43-49)

Regarding Claim 6, Crinion discloses the switching device of claim 5, wherein the traffic shaper further comprises a marker module for marking the plurality of frames in accordance with a TCM algorithm. (Hussain col 7, II 15-19; col 10, II 1-3: mark frames based on TCM algorithm (discard, do not discard))

It would have been obvious to one of ordinary skill in the art to modify Crinion to enable the capability for a traffic shaper for discarding one or more frames from the network processor that exceed one or more bandwidth parameters as taught by Hussain. One of ordinary skill in the art would have been motivated to employ the teachings of Hussain in order to enable the capability to perform a fair allocation of bandwidth with network packet based metering within a virtual network environment. (Hussain col 1, II 33-36; col 1, II 43-49)

Regarding Claim 7, Crinion discloses the switching device of claim 6, wherein the one or more bandwidth parameters comprise a committed information rate (CIR) and an excess burst size (EBS). (Hussain col 2, ll 64-67: committed information rate (CIR); col 10, ll 3-8: peak (excess) burst size: equivalent 2 burst sizes (committed, peak (excess)))

It would have been obvious to one of ordinary skill in the art to modify Crinion to enable the capability for bandwidth parameters committed information rate (CIR) and excess (peak) burst size (EBS) as taught by Hussain. One of ordinary skill in the art would have been motivated to employ the teachings of Hussain in order to enable the capability to perform a fair allocation of bandwidth with network packet based metering within a virtual network environment. (Hussain col 1, ll 33-36; col 1, ll 43-49)

Regarding Claim 8, Crinion discloses the switching device of claim 2, wherein the traffic shaper comprises a flow search engine for classifying frames from the network processor based upon one or more properties associated with the frames. (Hussain col 8, ll 56-62; col 7, ll 62-64: flow classification for packets using header information (properties of packet))

It would have been obvious to one of ordinary skill in the art to modify Crinion to enable the capability for classifying frames based on frame properties as taught by Hussain. One of ordinary skill in the art would have been motivated to employ the teachings of Hussain in order to enable the capability to perform a fair allocation of

bandwidth with network packet based metering within a virtual network environment.

(Hussain col 1, ll 33-36; col 1, ll 43-49)

Regarding Claim 9, Crinion discloses the switching device of claim 8, wherein the flow search engine comprises a content addressable memory (CAM). (Crinion col 1, ll 52-54; col 2, ll 55-57; col 3, ll 3-4: CAM utilized in data frame processing)

Regarding Claim 10, Crinion discloses the switching device of claim 9, wherein the CAM associated with each of the plurality of data link layer processors consists of QoS rules pertaining to the associated plurality of physical layer interfaces. (Crinion col 1, ll 47-49; col 3, ll 26-27: set priority, determination of quality of service (QoS) for data frame(s))

Regarding Claim 11, Crinion discloses the switching device of claim 2, wherein data link layer processors are media access controller (MAC) processors. (Crinion col 8, ll 26-28; col 5, ll 66-67; col 6, ll 66 - col 7, ll 3; col 8, ll 17-19; col 8, ll 34-37: MAC (Ethernet, 802.3 LAN users) access for data frames)

Regarding Claim 12, Crinion discloses the switching device of claim 2, wherein the switching device is selected from the group consisting of: a router, a multi-layer switching device, and a switch blade. (Crinion col 2, ll 50-51; col 4, ll 45-48: switch (switching device))

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KYUNG H. SHIN whose telephone number is (571) 272-3920. The examiner can normally be reached on 9:30 am - 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tonia Dollinger can be reached on 571-272-4170. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kyung Hye Shin
Examiner
Art Unit 2143

KHS
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/Tonia LM Dollinger/

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Supervisory Patent Examiner, Art Unit 2143